



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the application of:

Giampiero MORINI et al.

Serial No.: 08/603,497

Group Art Unit: 1505 #19

Filed: February 20, 1996

Examiner: E. Smith

For: 1,3-DIETHERS AND COMPONENTS AND CATALYSTS FOR THE  
POLYMERIZATION OF OLEFINS, CONTAINING SAID DIETHERS

REQUEST FOR ORAL HEARING

Assistant Commissioner for Patents  
Washington, D.C. 20231

February 18, 1998

Sir:

Applicants hereby request an Oral Hearing before the Board of Appeals, in connection with the above-identified application. This Request is being timely filed.

The Commissioner is authorized to charge the \$270.00 fee set forth in 37 CFR § 1.17(g) to Deposit Account No. 08-2336.

The Commissioner is also authorized to charge any additional fee (or credit any overpayment) associated with this statement to Deposit Account No. 08-2336. Two copies of this authorization are attached.

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Respectfully submitted,

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REPLY BRIEF TRANSMITTAL

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

February 18, 1998

Sir:

Submitted herewith are an original and two copies of a Reply Brief in this U.S. patent application.

Also attached is a Request for Oral Hearing for this application.

Respectfully submitted,

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Enclosures:

Reply Brief and two copies  
Request for Oral Hearing



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BEFORE THE ~~TRADEMARK~~ BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

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REPLY BRIEF

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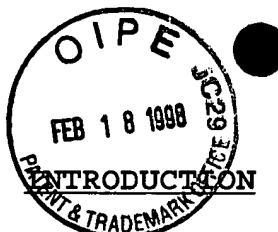
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I.

INTRODUCTION

Examiner Smith is thanked for entering the Supplemental Amendment filed October 3, 1997. This Brief is in reply to the Examiner's Answer mailed December 19, 1997 ("Answer").

The Appellants have discovered that the use of specified 1,3-diethers as either internal or external electron donors to olefin polymerization catalyst permits very high levels of stereospecificity while maintaining high catalytic activity. A key feature of these diethers is a "cyclopolyenic" structure which includes the 2-position carbon atom of the diether and which has multiple unsaturation. The Brief on Appeal points out that none of the cited references disclose or suggest the cyclopolyenic diethers of the present invention.

II.

ARGUMENT

The Answer argues that Albizzati '213 "generically includes the claimed ethers." However, the mere fact that a claimed compound may be encompassed by a broad generic disclosure does not by itself render that compound obvious, In re Baird, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1992). This Reply demonstrates that the portions of the references cited in the Answer fail to provide an objective disclosure which would lead one of ordinary skill to modify those references to arrive at the claimed invention.

A. ALBIZZATI '213 FAILS TO DISCLOSE OR SUGGEST THE CYCLOPOLYENIC DIETHERS OF THE PRESENT INVENTION

The Answer admits that U.S. Patent No. 5,068,213 to Albizzati et al. does not expressly disclose the cyclopolyenic diethers of the present invention:

While this description does not specifically state that the ring formed from bonding the X and Y radicals can be unsaturated...

Answer, page 3, lines 9-11. However, the Answer erroneously argues that Col. 2, lines 3-8 and col. 2, lines 54-60 suggest that this ring could have a plurality of double bonds.

1. Col. 2, lines 3-8 of Albizzati '213 Utterly Fail to Disclose the Cyclopolyenic Diethers of the Present Invention

The claimed 1,3-diethers have a ring which includes the 2-position carbon atom, with the ring having multiple unsaturation. This structural feature is not disclosed or suggested by the cited portion of this reference:

The ethers of the present invention contain at least two or more ether groups and at least one heteroatom selected from the group consisting of N, S, P, Si, non-ether O and halogen atoms, or at least one double bond, or contain at least one heteroatom as defined above and at least one double bond.

Albizzati '213, Col. 2, lines 3-8.

This disclosure is too general to lead one of ordinary skill in the art to 1,3-diethers having a ring which includes the 2-position carbon atom and which has multiple unsaturation. Instead,

the Patent Office has impermissibly supplied the disclosure absent from Albizzati '213 based on knowledge gleaned from the Appellants' specification. However, it is improper to use hindsight to supply information missing from the references. Accord, In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (there must be some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art that would lead that individual to combine the relevant teachings of the references).

2. Col. 2, lines 54-60 of Albizzati '213  
Utterly Fail to Disclose the Cyclopolyenic  
Diethers of the Present Invention

The 2-position carbon of the 1,3-diethers of the present invention must be part of a multiply-unsaturated ring. In contrast, the cited portion of Albizzati '213 teaches that a saturated<sup>1</sup> ring may be bonded to the 2-position carbon atom:

X and Y can be bonded together to form an R<sup>VI</sup> hydrocarbon radical having 1-18 carbon atoms and optionally containing heteroatoms selected from the group consisting of N, S, P, Si, non-ether O and halogen atoms said R<sup>VI</sup> being also optionally bonded to the central carbon atom through a double bond.

Albizzati '213, col. 2, lines 54-60 (emphasis added).

The Patent Office argues that one of ordinary skill would be motivated to add additional unsaturation to the Albizzati '213

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<sup>1</sup> One of ordinary skill in the art would interpret "hydrocarbon radical" as saturated rather than unsaturated in view of the non-cyclic definition of X (when it is not bonded to the Y radical) which can contain "at least one double bond" (Col. 2, lines 44-49).

diethers to reach the claimed invention because "analogous" ethers are allegedly disclosed by the other references. However, this argument is without merit.

B. REFERENCES WHICH TEACH SATURATED COMPOUNDS  
DO NOT SUGGEST MODIFYING ALBIZZATI '213 BY  
ADDING ADDITIONAL UNSATURATION TO ITS DIETHERS

The Answer argues that U.S. Patent No. 5,122,492 to Albizzati et al. and U.S. Patent No. 4,978,648 to Barbe et al. disclose saturated<sup>2</sup> analogs of some of the Albizzati '213 diethers, and that one of ordinary skill in the art would be motivated to modify these analogs by introducing additional unsaturation into the ring containing the central carbon atom.

1. The Homolog Rule Does Not Apply to Structural Analogs

The homolog rule does not extend to structural analogs per se. The Board of Appeals has stated that it is not obvious to interchange a saturated ethyl group for an unsaturated ethenyl group where, as here, there is no suggestion to do so in the prior art:

[N]or do we agree that it would be obvious to interchange ethyl and ethenyl groups, absent some suggestion from the reference.

In re Brouard, 201 USPQ 538, 539 (Bd. App. 1976).

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<sup>2</sup> The Answer contains a typographical error on page 3, line 20. The compound disclosed by Albizzati '492 is the saturated ether 1,1-bis(methoxymethyl)-cyclohexane, not 1,1-bis(methoxymethyl)-cyclohexene. See Albizzati '492, Col. 4, lines 17-18.

2. The Patent Office Has Impermissibly Used  
Hindsight to Supply Motivation to Modify  
Albizzati '213 By Adding Additional  
Unsaturation to Its Central Ring Structure

The Answer does not explain why one of ordinary skill in the art would add additional unsaturation to Albizzati '213 based on the disclosure of saturated compounds in Albizzati '492 and Barbe. One of ordinary skill would be motivated to employ saturated diethers in view of the disclosures of Albizzati '492 and Barbe, rather than modifying Albizzati '213 by adding additional unsaturation. The Answer's argument highlights the hindsight knowledge which the Patent Office is necessarily relying upon to justify maintaining this rejection.

C. DENKO FAILS TO DISCLOSE OR  
SUGGEST CYCLOPOLYENIC 1,3-DIETHERS

Denko et al. is directed to a 1,1-diether rather than a 1,3-diether and thus is even less relevant than the primary references. One of ordinary skill in the art would not consider modifying the 1,3-diethers of the primary reference by adding additional unsaturation due to Denko. The English language abstract of this reference does not suggest that 1,3-diethers should possess a cyclopolyenic structure, or that one of ordinary skill in the art would have a reasonable expectation of success that such an analog will provide a desirable balance of high stereospecificity while maintaining high catalytic activity.

D. THE PATENT OFFICE HAS FAILED TO EXPLAIN WHY  
ONE OF ORDINARY SKILL IN THE ART WOULD HAVE  
A REASONABLE EXPECTATION OF SUCCESS THAT THE  
MODIFIED DIETHERS WOULD WORK

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When features of prior art references are modified to establish obviousness, the mere possibility of such a modification is insufficient. Instead, a reference may only be modified when (1) the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition, and (2) that those of ordinary skill in the art would have a reasonable expectation of success in making the claimed composition. See In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991).

As demonstrated above and in the Brief on Appeal, there is no motivation to modify the prior art diethers to arrive at the 1,3-diethers of the present invention, thereby failing to satisfy the first prong of the Vaeck test.

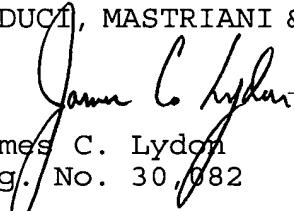
Moreover, the rejection also fails the second prong of the Vaeck test. Catalysis is generally considered an unpredictable field. The Patent Office has failed to explain why one of ordinary skill would have a reasonable expectation that such a modification would successfully provide a desirable balance of high stereospecificity while maintaining high catalytic activity.

III. CONCLUSION

The cited combination of references fails to raise a prima facie case of obviousness because it does not disclose or suggest the cyclopolyenic diethers of the present invention, and one of ordinary skill would not have a reasonable expectation that adding additional unsaturation into a central ring containing the 2-position carbon of a 1,3-diether would be successful. Accordingly, it is respectfully requested that this Board reverse the rejection of claims 1-6, 8-20, and 22-29, and pass this application on to allowance and issuance.

Respectfully submitted,

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